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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

KENNY, DANIEL J

ART UNIT	PAPER NUMBER
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3637

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/817,587	Applicant(s) RITCHEY ET AL.	
	Examiner Dan Kenny	Art Unit 3637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/14/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

The information contained in the information disclosure statement (IDS) submitted on 6/14/2004 was considered by the examiner.

Specification

The disclosure is objected to because of the following informalities: the term "changed" on line 5 of page 11 should apparently be "change"; line 9 on page 11 uses the term "connector" consecutively, apparently in error.

Appropriate correction is required.

Claim Objections

Claims 1-3, 8 are objected to because of the following informalities: the term "an" in claim 2 at line 21 is not grammatically correct. In claim 3, at line 27, the term "rafter" should apparently be "ridge". In claim 8, at line 30, for consistency, the term "post rafter" should be "post-rafter". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1- 5, 8, 14, and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the abbreviation "HSS" at line 7 is improper because a person having ordinary skill in the art would not be able to understand the meaning, and in addition, HSS appears to possibly be a trademark. Claim 1 is additionally rejected because the period in line 7, and the comma at the end of the claim are improper.

Claim 2 recites the limitation "base plate anchor bolt holes" in lines 21 and 22. There is insufficient antecedent basis for this limitation in the claim.

Claim 3 recites the limitation "the ridge end" in lines 31. There is insufficient antecedent basis for this limitation in the claim.

Claim 4 is rejected because there is no disclosure of a building frame wherein "each" (and the way the claim reads, every) post-joist-rafter connector has a connecting surface having a hip rafter angle.

Claim 5 is rejected because it is unclear whether the claim is dependent on claim 1. On the one hand, there is a reference to claim 1; on the other hand, the claim recites "a hip frame of Claim 1", there being no hip frame in claim 1.

Claim 5 recites the limitation "the rafter connectors" in lines 11 and 12. There is insufficient antecedent basis for this limitation in the claim.

Claim 5 is rejected because it is unclear how, as recited at lines 19-23, the ridge end of the first rafter can be bolted to the connecting plate of the first main frame rafter connector, and the ridge end of the second rafter can be bolted to the connecting plate

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of the second main frame rafter connector, since it appears that only the post-joist-rafter connectors have connecting plates. The confusion is caused, at least in part, because the ridge connector and post-joist-rafter connectors both have rafter connector portions, but the claim recites "rafter connectors" without clarifying whether the rafter connectors are part of the ridge connector or post-joist-rafter connectors. Does the ridge connector have a connecting plate like the post-joist-rafter connector? If so, such a plate is not in the claim. If not, the claim as written appears to require connection of both the post and ridge ends of the rafters to the rafter connector portion of the post-joist-rafter connectors, which is apparently not possible.

Claim 8 is rejected because it is unclear what is meant by the singular "rafter connector" of line 30 because it appears that the post-rafter connector specified must have two rafter connectors. Claim 8 is further rejected because, at page 28, line 2, it is unclear to which "rafter connector" the claim is referring. Is this the rafter connector of the post-rafter connector, or is it another rafter connector? The term "a" before "rafter connector", in addition to the lack of any further description of the rafter connector makes this part of the claim unclear.

Claim 8 is rejected because, at line 30, the claim recites "the post rafter connector having a post connector and a rafter connector", but the specification discloses only a post rafter connector having a post connector and two rafter connectors.

Claim 12 is rejected because it is unclear how, as recited at lines 19-21, a ridge purlin connector can extend between and be attached to the two other ridge purlin

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connectors. Should the word "purlin" be substituted for the words "purlin connector" at line 19? In addition, claim 12 is rejected because it is unclear what is meant by "a first steel clip rafter connector attached to each of two adjacent rafters and a second steel clip rafter connector attached to other of the two adjacent rafters".

Claim 14 recites the limitation "rafter channel" in line 10. There is insufficient antecedent basis for this limitation in the claim. Is the rafter channel the same as the ridge connector portion of the ridge connector?

Claim 19 recites the limitation "rafters" in line 24. There is insufficient antecedent basis for this limitation in the claim.

All the above rejected claims will be examined as best understood.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 3, 6, 7, 9, are rejected under 35 U.S.C. 103(a) as being unpatentable over Madray (4,688,358) in view of Tacoma (5,660,005)

Claim 1

Madray discloses a free-standing open-span building frame (see Fig. 1) comprising:

first and second upright posts (12, 24, 12, 24), first (fmpjr) and second (smpjr) post-joist-rafter connectors (270, roof truss adapter, see Figs. 19-23), and a joist (40);

each post having a lower end bolted (anchored, col. 6, line 7) to respective first and second tracks (13);

each post-joist-rafter connector comprising a post connector (230), a joist connector (238) and a rafter connector (248);

the first post having an upper end bolted (suitably fastened, col. 9, line 33) to the post connector of the first post-joist-rafter connector, and the second post having an upper end bolted to the post connector of the second post-joist-rafter connector (see Fig. 1 showing the two posts connected to the respective post connectors of the two post-joist-rafter connectors); and

the joist having first and second joist ends, the first joist end being bolted (suitably fastened, col. 9, line 33) to the joist connector of the first post-joist-rafter connector, and the second joist end being bolted to the joist connector of the second post-joist-rafter connector (see Fig. 1 showing the joist connected to the respective joist connectors of the two post-joist-rafter connectors).

Although Madray does disclose the lower ends of the posts being bolted to first and second tracks as described above, Madray does not expressly disclose the lower ends of the posts being bolted to respective steel post connectors of first and second base plates, each base plate comprising a steel plate having an upper surface to which is welded the lower end of the steel post connector that is channel, or round beam with a rectangular cross-section.

Tacoma discloses a free-standing open-span building frame (10) wherein the lower ends of posts (20) are bolted (138, col. 7, line 23) to respective steel post connectors (136, Fig. 10) of first and second base plates (22, 136), each base plate comprising a steel plate (22) having an upper surface to which is welded (see Fig. 10 showing welds surrounding the lower end of the steel post connector, and attaching it to the steel plate) to the lower end of the steel post connector that is channel with a rectangular cross-section.

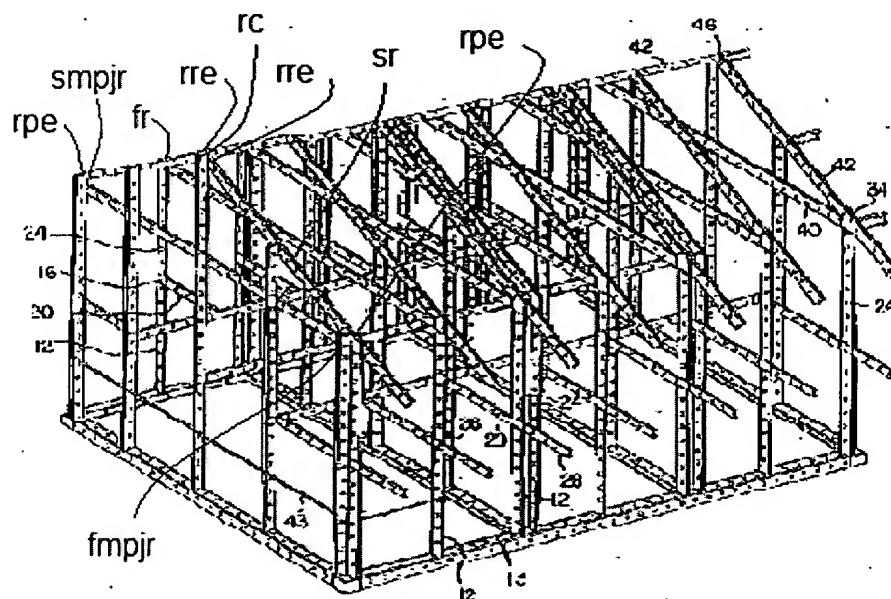
It would have been obvious to one of ordinary skill in the art at the time the present invention was made to use a base plate as taught by Tacoma in the structure of Madray to spread the load and fasten the posts to the foundation (col. 4, line 7).

Claim 3

Madray in view of Tacoma discloses all the claimed limitations as described above, Madray further disclosing a building frame including a ridge connector (280, see figs. 24-29) and first (300, fr) and second (302, sr) rafters, the ridge connector having first (292, 284, 290) and second (282, 286, 288) rafter connectors; and each of the

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rafters having a post end (rpe) and a ridge end (rre), the post end of the first rafter being bolted (suitably fastened, col. 9, line 33) to the rafter connector of the first post-joist-rafter connector, the post end of the second rafter being bolted to the rafter connector of the second post-joist-rafter connector, the ridge end of the first rafter being bolted to the first rafter connector, and the ridge end of the second rafter being connected to the second rafter connector (col. Col. 9, lines 66-68 and col. 10, lines 1-4).



Annotated Fig. 1 (U.S. Pat. 4,688,358)

Claim 9

Madray in view of Tacoma discloses all the claimed limitations as described above, Madray further disclosing a building frame wherein the connections between the base plates and posts; between the post-joist-rafter connectors and the posts joists and rafters; and between the rafters and the ridge connector are snug fits (col. 1, lines 61-65, col. 3, lines 21-23, col. 6, lines 67 and 68, col. 7, lines 1-3, and col. 7, lines 24 and

25, and col. 8, lines 18-23) secured with bolts and nuts (large diameter fastening structure, col. 7, line 39).

Claim 6

Madray in view of Tacoma discloses all the claimed limitations as described above, Madray further disclosing a building frame wherein the central axes of the posts, joist and rafters lie in a vertical frame plane (see Fig. 1).

Claim 7

Madray in view of Tacoma discloses all the claimed limitations as described above, Madray further disclosing a plurality of free-standing open-span building frames (see Fig. 1), at least two adjacent frame planes being parallel (see Fig. 1). Madray does not expressly disclose a frame plane-to-frame plane distance of from 3 to 14 meters. At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to use a frame plane-to-frame plane distance of from 3 to 14 meters because Applicant has not disclosed that having a frame plane-to-frame plane distance of from 3 to 14 meters provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Madray's frame, and applicant's invention, to perform equally well with either an unspecified frame spacing taught by Nash or the claimed frame plane-to-frame plane distance of from 3 to 14 meters.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Madray in view of Tacoma and in further view of Simpson et al. (2,871,997). Madray in view of Tacoma discloses all the claimed limitations as described above, Madray further disclosing a plurality of frames including first and second adjacent frames (see Fig. 1). Madray in view of Tacoma does not expressly disclose, in at least one pair of adjacent first and second posts, a first reinforcing bar bolted to the top of the first post and to the bottom of the second post, and a second reinforcing bar bolted to the top of the second post and to the bottom of the first post. Simpson et al. discloses this commonly used method of diagonal-bracing (44, 45) metal-building frame bays as best shown in Fig. 1.

It would have been obvious to one of ordinary skill in the art at the time the present invention was made to use diagonal-bracing between the posts as taught by Simpson et al. in the structure of Madray in view of Tacoma to maintain the posts in parallel relationship (col. 7, lines 50-55).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Madray in view of Tacoma, and in further view of Kaiser (3,242,620).

Madray in view of Tacoma discloses a building frame as described above, Tacoma further including holes (see Fig. 10) in the steel plates of each base plate, each base plate being fastened to a foundation (col. 4, lines 7-10). Madray in view of Tacoma does not expressly disclose that the foundation is of the steel reinforced concrete type, nor does Madray in view of Tacoma expressly disclose anchor bolts as the specific fastener used to fasten the base plate to the foundation.

Kaiser discloses a building frame wherein base plates (21) are anchor bolted (23) to a reinforced (27) concrete foundation (24). Examiner takes official notice that said reinforcing bars are of the art recognized, and virtually exclusively used, steel variety.

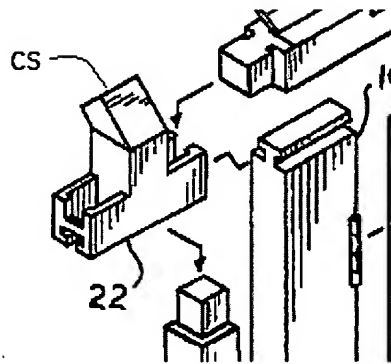
It would have been obvious to one of ordinary skill in the art at the time the present invention was made to include the use of anchor bolts to fasten the base plates to a reinforced concrete foundation as taught by Kaiser in the structure of Madray in view of Tacoma to withstand forces from dead or live loads as well as longitudinal and lateral wind forces (col. 1, lines 20-24).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Madray in view of Tacoma and in further view of Cawthon (5,555,681).

Madray in view of Tacoma discloses a building frame as described above. Madray in view of Tacoma does not expressly disclose a hip roof construction wherein the rafter connector of a post-joist-rafter connector has a connecting surface which has a hip rafter angle.

Cawthon discloses a post-joist-rafter connector (22, SPJHC, see annotated Fig. 1 below) wherein a rafter connector (hc) of the post-joist-rafter connector has a connecting surface (cs, see annotated Fig. 6) having a hip rafter angle.

It would have been obvious to one of ordinary skill in the art at the time the present invention was made to include a hip roof connector as taught by Cawthon in the structure of Madray in view of Tacoma to provide an architectural alternative to a gable roof.



Annotated Fig. 6 (5,555,681)

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Madray in view of Tacoma and in further view of Cawthon.

Madray modified by Tacoma discloses a building frame comprising a main frame (see Fig. 1), the main frame including first (fmpjr) and second (smpjr) main frame post-joist-rafter connectors (270, roof truss adapter);

first and second main frame rafters (42, fr and sr); and

a ridge connector (280, rc) having first (292, 284, 290) and second (282, 286, 288) main frame rafter connectors;

the rafter connectors (248) of the first and second main frame post-joist-rafter connectors each having a connecting plate (252) aligned with the angle of its respective main frame rafter;

each of the first and second main frame rafters having a post end (rpe) and a ridge end (rre);

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the post end of the first rafter being bolted (col. 9, line 33, and col. 14, lines 18-22) to the rafter connector of the first main frame post-joist-rafter connector, the post end of the second rafter being bolted (col. 9, line 33, and col. 14, lines 18-22) to the rafter connector of the second main frame post-joist-rafter connector (see Fig. 1 showing the joists connected to the respective joist connectors of the two post-joist-rafter connectors);

the ridge ends of the first and second rafters being bolted (col. 9, line 33, and col. 14, lines 18-22) to the respective main frame rafter connector portions of the ridge connector.

Madray modified by Tacoma does not expressly disclose that the ridge connector has first and second hip rafter ridge connectors, nor does Madray modified by Tacoma expressly disclose:

a hip frame;

the hip frame including first and second post-joist-hip rafter connectors and first and second hip rafters, each of the post-joist-hip rafter connectors having a post connector, a joist connector and a hip connector;

the hip rafter connectors each having a connecting plate aligned with the angle of its respective hip rafter, and said first and second hip rafter ridge connectors each having a connecting plate aligned with the angle of its respective hip rafter;

a joist having one end bolted to the joist connector of a first post-joist-hip connector and the other end bolted to the joist connector of a second post-joist-hip connector; and

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each of the hip rafters having a post end and a ridge end, the post end of the first hip rafter being bolted to the hip rafter connector of the first post-joist-hip rafter connector, the post end of the second hip rafter being bolted to the rafter connector of the second post-joist-hip rafter connector, the ridge end of the first hip rafter being bolted to the first hip rafter ridge connector, and the ridge end of the second hip rafter being bolted to the second hip rafter ridge connector.

Cawthon (5,555,681) discloses a building frame comprising:

a hip frame (see darkened portion of annotated Fig. 1 below);

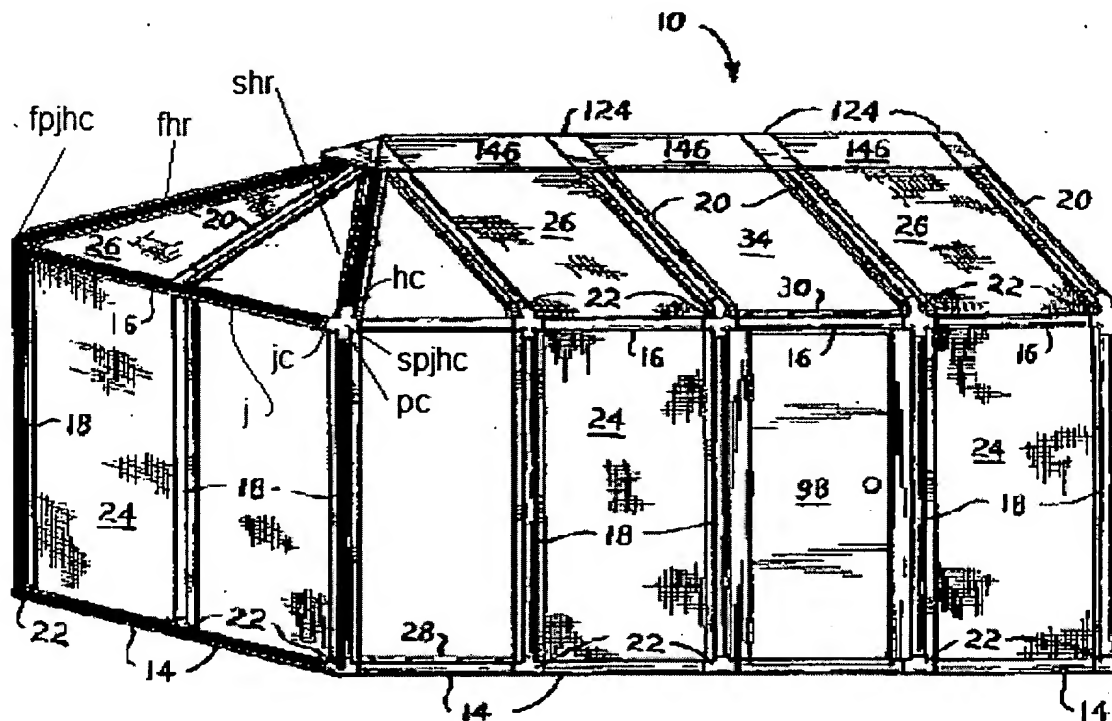
the hip frame including first (fpjhc) and second (spjhc) post-joist-hip rafter connectors and first (fhr) and second (shr) hip rafters, each of the post-joist-hip rafter connectors having a post connector (pc), a joist connector (jc) and a hip connector (hc), and a ridge connector (158) having first and second hip rafter ridge connectors (150, rafter sockets);

a joist (j) having one end connected to the joist connector of a first post-joist-hip connector and the other end connected to the joist connector of a second post-joist-hip connector (see annotated Fig. 1 below); and

each of the hip rafters having a post end and a ridge end, the post end of the first hip rafter being connected to the hip rafter connector of the first post-joist-hip rafter connector, the post end of the second hip rafter being connected to the rafter connector of the second post-joist-hip rafter connector, the ridge end of the first hip rafter being connected to the first hip rafter ridge connector, and the ridge end of the second hip rafter being connected to the second hip rafter ridge connector (see Fig. 1).

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It would have been obvious to one of ordinary skill in the art at the time the present invention was made to include a hip roof frame as taught by Cawthon in the structure of Madray in view of Tacoma to provide an architectural alternative to a gable roof.



Annotated Fig. 1 (U.S. Pat 5,555,681)

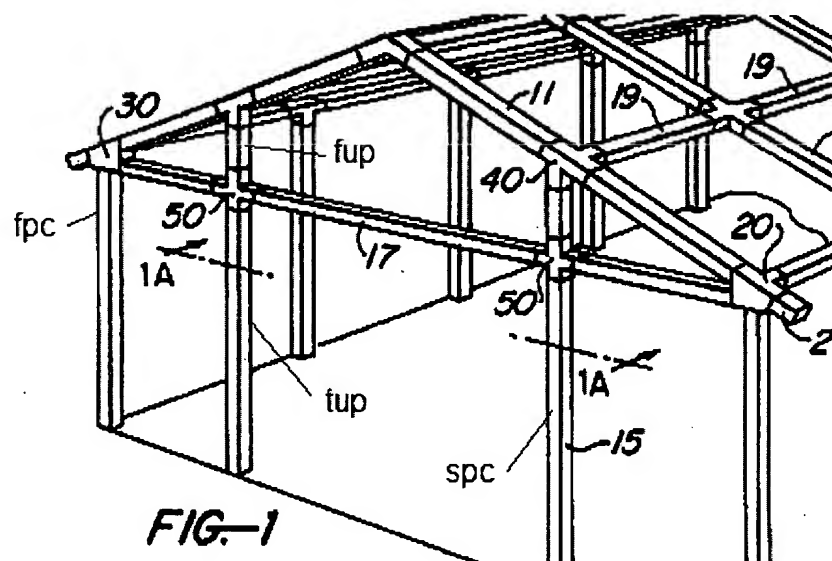
Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Madray in view of Tacoma and in further view of Inman (5,966,890).

Madray in view of Tacoma discloses a building frame as described above. The building frame taught by Madray in view of Tacoma does not expressly include a third post construction spaced between the first and second base plates. Inman discloses a building frame including a third post construction (tup, fup, 50, 60) spaced between first

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(fpc) and second (spc) posts, the third post construction including, third (tup) and fourth (fup) upright posts, a post-joist connector (60, see Fig. 10), and a post-rafter connector (50, see Fig. 9), the post-joist connector comprising lower (54) and upper (52) post connectors and two joist connectors (56, 58), each joist connector being bolted (threaded fasteners, col. 2, lines 12-15) to a joist; the third post having an upper end bolted to the lower post connector (see Fig. 1); the post rafter connector having a post connector (42) and two rafter connectors (46, 48); and the fourth post having a lower end bolted to the upper post connector and an upper end bolted to a rafter connector. Note that, although Inman does not expressly disclose the claimed base plate structure, one having ordinary skill in the art would consider it obvious to include the base plate structure taught by Madray in view of Tacoma in Inman.

It would have been obvious to one of ordinary skill in the art at the time the present invention was made to include third post structure as taught by Inman in the structure of Madray in view of Tacoma to provide added stability to the frame end walls.



Annotated Fig. 1 (5,966,890)

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Madray in view of Tacoma and Inman and in further view of Sheppard, Jr. et al (4,616,453).

Madray in view of Tacoma and Inman discloses a building frame as described above. Madray in view of Tacoma and Inman does not expressly disclose girts secured to adjacent posts by self-tapping screws and purlins secured to adjacent rafters by self-tapping screws. Sheppard, Jr. et al discloses a building frame wherein girts (133) are secured to adjacent posts (135, studs) by self-tapping screws (136) and with purlins (133, girts are the secondary roof framing structural members as shown in Fig. 14, also see col. 2, lines 45-47) secured to adjacent rafters (135) by self-tapping screws (136).

It would have been obvious to one of ordinary skill in the art at the time the present invention was made to include self-tapping screw-attached girts and purlins as taught by Sheppard et al. in the structure of Madray in view of Tacoma and Inman to provide a suitable attachment surface for roof and wall sheathing.

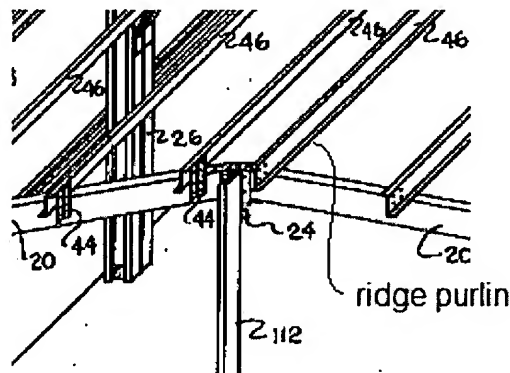
Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Madray in view of Tacoma and Inman and in further view of Smith (4,342,177).

Madray in view of Tacoma and Inman discloses a building frame as described above. Madray in view of Tacoma and Inman does not expressly disclose first and second steel clips, each having a rafter connector and a ridge purlin connector forming a 90° angle therebetween, a first steel clip rafter connector attached to one of two

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adjacent rafters and the second steel clip rafter connector attached to the other of the two adjacent rafters, and a ridge purlin extending between and attached to the ridge purlin connectors of the first and second clips. Smith discloses a building frame including first and second steel clips (56, purlin girt clips, see Fig. 3 and Fig. 22), each having a rafter connector (154, Fig. 22) and a ridge purlin connector (156, Fig. 22) forming a 90° angle therebetween, two steel clip rafter connectors attached to each of two adjacent rafters (col. 4, lines 63-65), and a ridge purlin (46, see also annotated Fig. 1 below) extending between and attached to the ridge purlin connectors of the first and second clips.

It would have been obvious to one of ordinary skill in the art at the time the present invention was made to include clip-attached ridge purlins as taught by Smith in the structure of Madray in view of Tacoma and Inman to provide an attachment surface for roof sheathing.



Annotated Fig. 1 (U.S. Pat 4,342,177)

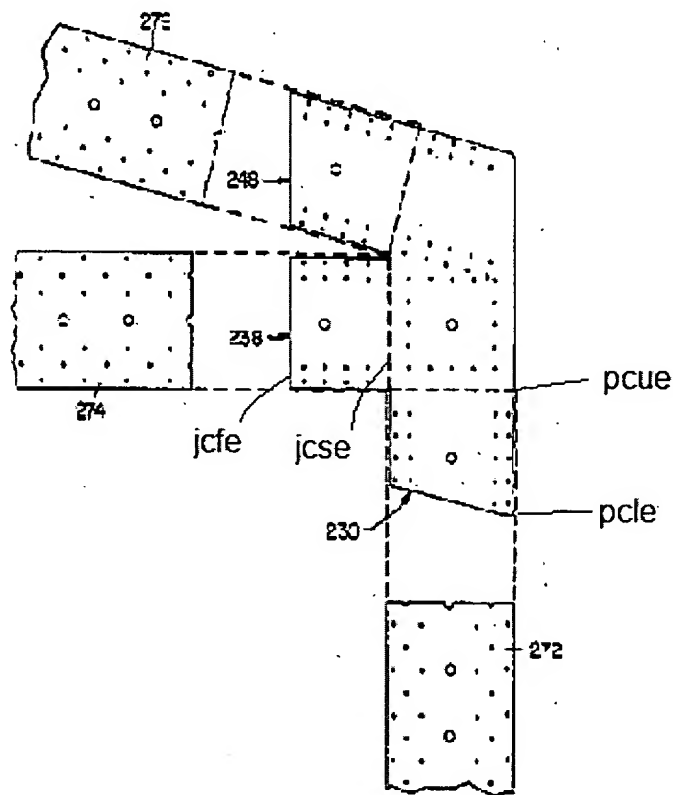
Claim 13 - is rejected under 35 U.S.C. 103(a) as being unpatentable over Madray in view of Tacoma and in further view of Dufour (4,974,387). Madray in view of Tacoma discloses all the claimed limitations as described above, Madray further disclosing a free-standing open-span building frame wherein the steel post-joist-rafter connector comprises a post channel (230) with an upper end (pcue) and a lower end (pcle), and a joist channel (238) having a first end (jcfe) and a second end (jcse), the post channel comprising a web (232) and first (234) and second (236) parallel post channel flanges, the joist channel comprises a web (240) and first (242) and second (244) parallel joist channel flanges, each of the flanges forming a 90° angle (see Figs. 20-22) with its respective web, the webs of the post channel and the joist channel being in approximately the same plane, and the flanges of the post channel and the joist channel extending in the same direction from their respective webs, and a set of bolt holes (258, apertures for receiving suitable fastening means (bolts, col. 14, lines 21), col. 28-34) in the webs adjacent the lower end of the post channel and adjacent the second end of the joist channel.

Madray does not expressly disclose the flanges and web of the first end of the joist channel being welded to an outer surface of a post channel flange, or the flanges and web of the upper end of the post channel being welded to a rafter connector plate positioned at a lower rafter surface angle. Dufour discloses a framing system wherein the flanges (39) and web (35) of a first end of a joist channel (29) are welded (col. 3, lines 5-6) to an outer surface of a post channel flange (41), and the flanges (41) and web (33) of an upper end of a post channel (27) are welded (col. 3, lines 5-6) to a rafter

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connector plate (37, note that the rafter, 7,9, is connected to 37 by welding as recited at col. 3, lines 55-59) positioned at a lower rafter (7, 9) surface angle.

It would have been obvious to one of ordinary skill in the art at the time the present invention was made to use welded channel connections as taught by Dufour in the structure of Madray in view of Tacoma to provide a strong connection.



Annotated Fig.

Claim 14 - is rejected under 35 U.S.C. 103(a) as being unpatentable over Madray in view of Tacoma and in further view of Dufour (4,974,387).

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Madray in view of Tacoma discloses all the claimed limitations as described above, Madray further disclosing a free-standing open-span building frame wherein each of the two ridge connector portions of the rafter connector has a web (282, 284) and first and second parallel flanges (288, 292, 290, 286), the first rafter connector having first and second ends and the second rafter connector having third and fourth ends (see Figs. 24-28) each of the flanges of the first and second connectors forming a 90° angle (see Figs. 24-28) with its respective web, the webs forming a roof peak angle, the second and fourth ends of the rafter connectors each having a set of bolt holes (294, 298, apertures for receiving suitable fastening means, col. 9, lines 63-65, see also col. 14, lines 18-22) for securing rafters (fr, sr) to the connector.

Madray does not expressly disclose the first end web and flanges of the first rafter connectors being welded to the third end web and flanges of the second rafter connector. Dufour discloses a framing system wherein the ends of the webs and flanges of the rafter connectors are welded (col. 3, lines 46-47) together.

It would have been obvious to one of ordinary skill in the art at the time the present invention was made to use welded channel connections as taught by Dufour in the structure of Madray in view of Tacoma to provide a strong connection.

Claim 15 - is rejected under 35 U.S.C. 103(a) as being unpatentable over Madray in view of Tacoma and in further view of Dufour.

Madray in view of Tacoma and in further view of Dufour discloses all the claimed limitations as described above, the ridge connector taught by Madray further including

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each of the rafter channels mated with the end of the rafter cee-channel (see Fig. 29) and bolted (col. 1, lines 28-30, and col. 14, lines 18-22) thereto, the outer dimensions of the rafter channel and the inner dimensions of the cee-channel being selected to form a snug fit (col. 9, line 68). Since Madray expressly discloses a snug fit, and the instant application does not disclose that a maximum surface-to-surface distances of less than 2 mm inches apart provides an advantage; at the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to use a maximum surface-to-surface distances of less than 2 mm inches apart.

Claims 16 and 17 - are rejected under 35 U.S.C. 103(a) as being unpatentable over Dufour in view of Hale (4,809,480).

Dufour discloses a steel post-joist-rafter connector (17) comprising a post channel with an upper end (dpcue) and a lower end (dpcl), and a joist channel having a first end (djcf) and a second end (djcs), the post channel comprising a web (33) and first and second parallel post channel flanges (41), the joist channel comprising a web (35) and first and second parallel joist channel flanges (39), each of the flanges forming a 90° angle with its respective web, the flanges and web of the first end of the joist channel being welded (col. 3, lines 5-7) to an outer surface of a post channel flange, the flanges and web of the upper end of the post channel being welded to a rafter connector plate (37, note that the rafter, 7,9, is connected to 37 by welding as recited at col. 3, lines 55-59)) positioned at a lower rafter surface angle (see Fig. 2), the webs of the post channel and the joist channel being in approximately the same plane, and the flanges of

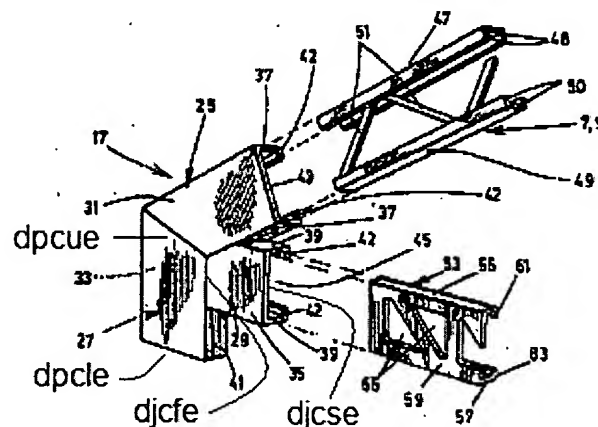
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the post channel and the joist channel extending in the same direction from their respective webs.

Dufour does not expressly disclose a set of bolt holes in the webs adjacent the lower end of the post channel and adjacent the second end of the joist channel, or a reinforcing plate welded to the web and flanges of the post channel in alignment with a flange of the joist channel.

Hale discloses connectors (20, 34, see Fig. 2) having a set of bolt holes (col. 3, lines 7-9, also see Fig. 2) in a post channel (36) web and joist channel (22) web, and a reinforcing plate (38) welded (col. 2, lines 64-66) to the web and flanges of a post channel (36) in alignment with a flange of the joist channel (20a).

It would have been obvious to one of ordinary skill in the art at the time the present invention was made to include bolt holes in the post and joist channel webs, and to include a welded reinforcing plate as taught by Hale in the structure of Dufour to provide a stronger connection between the connectors and the framing members.



Annotated Fig. 2 (U.S. Pat. 4,974,387)

Claim 18 - is rejected under 35 U.S.C. 103(a) as being unpatentable over Dufour in view of Hale and in further view of Breivik (5797694).

Dufour in view of Hale disclose all the claimed elements as described above. Dufour in view of Hale does not expressly disclose the rafter being a hip rafter and the rafter plate positioned at a hip rafter plate angle.

Breivik discloses a connector (10) for a hip roof building frame wherein a rafter connector (104, 600, 700) of a joist-rafter connector (10) has a connecting surface (surface, 104, is considered a connecting surface because the hip rafter is connected to the surface via a fastener that passes through hole, 110, col. 4, lines 48-50) having a hip rafter angle.

It would have been obvious to one of ordinary skill in the art at the time the present invention was made to include a hip roof connector as taught by Breivik in the structure of Dufour in view of Hale to provide an architectural alternative to a gable roof.

Claim 19 - is rejected under 35 U.S.C. 103(a) as being unpatentable over Madray in view of Dufour.

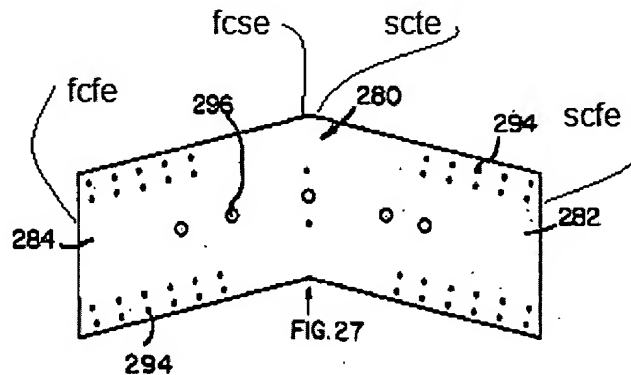
Madray discloses a ridge connector (280) comprising first (292, 284, 290) and second (282, 286, 288) rafter channels, each rafter channel having a web (282, 284) and first and second parallel flanges (292, 290, 286, 288), the first rafter channel having first (fcfe) and second (fcse) ends and the second rafter channel having third (scte) and fourth (scfe) ends, each of the flanges of the first and second channels forming a 90°

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angle with its respective web, the second and fourth ends of the channels each having a set of bolt holes (large diameter fastening structure, col. 7, line 39) for securing rafters (42) to the connector.

Madray does not expressly disclose the first end web and flanges of the first rafter channel being welded to the third end web and flanges of the second rafter channel. Dufour discloses a ridge connector (21, see Fig. 1, also see col. 3, lines 46-47) wherein the channels are welded (col. 3, lines 5-7) together.

It would have been obvious to one of ordinary skill in the art at the time the present invention was made to include welding as taught by Dufour in the structure of Madray to allow fabrication of the connector from standard C-channel.



Annotated Fig. 24 (U.S. Pat. 4,688,358)

Claim 20 - is rejected under 35 U.S.C. 103(a) as being unpatentable over Madray in view of Dufour.

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Madray in view of Dufour discloses a ridge connector as described above, Madray further disclosing the rafter channels mated with the end of a rafter (42), the outer dimensions of the rafter channel and the inner dimensions of the rafter being selected to form a snug fit (col. 6, lines 67 and 68). Since Madray, and Dufour at col. 3, lines 8 and 9), expressly discloses a snug fit, and the instant application does not disclose that a maximum surface-to-surface distances of less than 2 mm inches apart provides an advantage, at the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to use a maximum surface-to-surface distances of less than 2 mm inches apart.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure; Buelow (2,234,960), Andrews (4,773,192), Wells (6,003, 280), and Pittman, Sr. et al. (6,276,111) all discloses elements of the disclosed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dan Kenny whose telephone number is (571) 272-9951. The examiner can normally be reached on Monday thru Friday, 9 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lana Mai can be reached on (571) 272-6867. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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DK *D.K.*
1/4/2007

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